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(71)(72) Applicant and Inventor: SVENSSON, Ingemar [SE/SE]; Benzelsväg 22, S-443 00 Lerum (SE).

(74) Agent: LINDBERG, Bo; Cederbom & Lindberg AB, Box 53252, S-400 16 Göteborg (SE).

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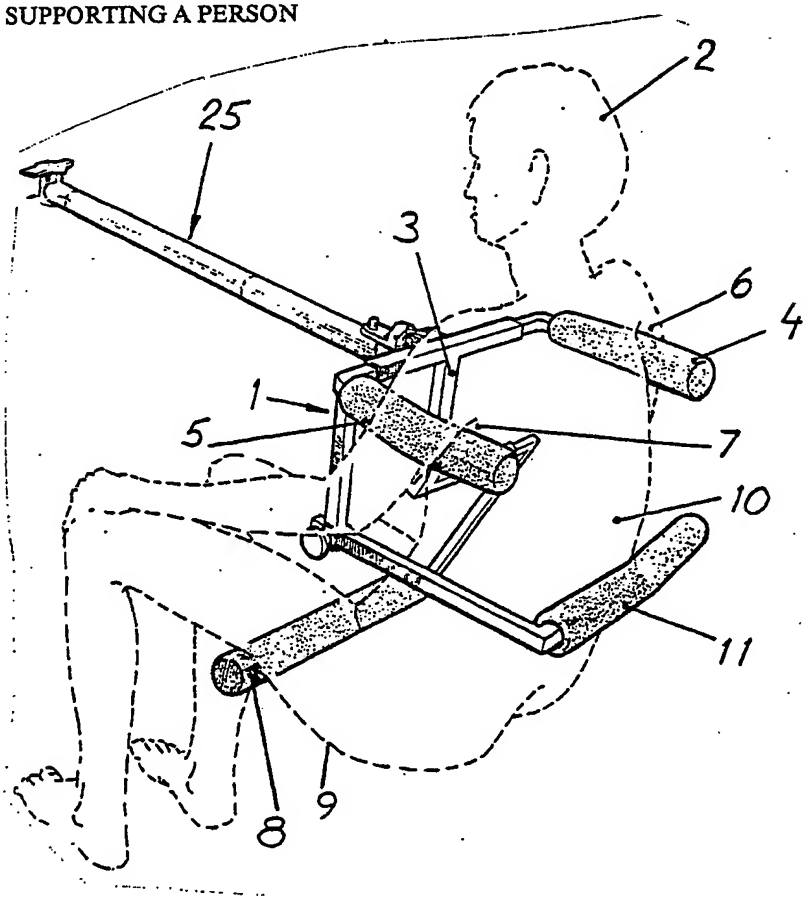
(54) Title: AN ARRANGEMENT FOR SUPPORTING A PERSON

(57) Abstract

Arrangement for supporting a person (2) when the person is being moved between two locations, this movement being accomplished by means of a lifting arrangement. The arrangement provides secure and effective support for a person whom it is desired to move. A coupling element (14), on which a supporting element (11) co-acting with the back (10) of the person is mounted, extends from a centrally positioned frame on which supporting elements (8, 4, 5) for supporting the person under their seat (9) and armpits (6, 7) are mounted.



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An Arrangement for Supporting a Person

The present invention relates to an arrangement for supporting a person when the person is being moved between two locations, this movement being accomplished by means of a lifting arrangement.

The main object of the present invention is primarily to provide an arrangement of the above-mentioned kind which enables the person who is using the arrangement to be effectively carried and supported, for example so they can be moved from a wheelchair to a vehicle, or between a wheelchair and a bath.

The said object is achieved by means of an arrangement according to the present invention which is essentially characterised in that a coupling element, on which a supporting element co-acting with the back of the person is mounted, extends from a centrally positioned frame on which supporting elements for supporting the person under their seat and armpits are mounted.

The invention is described in the following by way of a preferred embodiment example of a supporting arrangement, with reference to the accompanying drawings, on which

Figure 1 shows the arrangement in use, supporting a person,

Figure 2 shows the supporting arrangement with an associated lifting arrangement which can be coupled to it, in a position viewed obliquely from behind the said supporting arrangement,

Figure 3 shows the said lifting arrangement swung into a closed state,

Figure 4 shows the supporting arrangement viewed obliquely from behind, and

Figure 5 shows the supporting arrangement viewed obliquely from the front.

A supporting arrangement 1 according to the present invention, which is suitable for supporting a person 2

whom it is intended to move between two locations, for example from a wheelchair to a vehicle, is formed of a centrally positioned frame 3 on which there are mounted two supporting elements 4 and 5 respectively, designed to carry and support a person 2 under the armpits 6 and 7 respectively, together with a supporting element 8, designed to co-act with the seat 9 of the person and to support the said seat 9, and a supporting element 11 co-acting with the back 10 of the person. Expediently, the frame 3 is made in the shape of a T, having at its lower end 3A a section 12 extending forwards, away from the back supporting element 11, followed by a section 13 extending laterally from the section 12. Due to the fact that the frame 3 and the other parts incorporated in the supporting arrangement 1 consist of tubes or similar elements, simple production and assembly of the arrangement 1 and rapid adjustment of the supporting elements 4, 5, 8, 11 to various settings are possible.

A coupling element 14 consists of a downwardly from the said frame 3 extending upright 14^1 with an arm element 14^2 extending backwards in the vicinity of its lower end 14A, the rear end 14B of this arm element being bent laterally in towards the region for holding a person 2 and bearing a supporting element 11 there which co-acts with the back 10 of the person and which can be shaped to fit the contours of the back 10. The upright 14^1 engages via a sleeve-like coupling part 15 round the said arm element 14^2 and by means of a locking device 16 acting between the said coupling part 15 and the arm element 14^2 displacement of the arm element 14^2 relative to the upright 14^1 is possible into the desired position wherein they are locked relative to each other by means of the said locking device. In the embodiment example shown the said locking device 16 consists of a screw 16, but naturally a locking device other than a screw is also possible.

One 5 of the two armpit supporting elements 4 and 5 respectively is preferably rigidly connected to the coupling element 14 in the vicinity of its upper end 14C. In order to protect the person 2 from injury or from suffering discomfort when using the arrangement 1 the said supporting elements 4, 5, 8, 11 are made of soft material, and are preferably stuffed elements, for example bar-shaped cushions, etc.

Adjustment of the other one of the supporting elements 4 and 5 and optionally the supporting element 8 as well is possible in that the respective ends of the frame 3 have openings 17, 18, 19 designed to receive connecting elements 20, 14, 21 which are connected to the supporting elements 4, 5, 8, and can be locked in the desired position by means of locking devices 22, 23, preferably also in the form of screw devices.

An attachment device 24, preferably in the form of a coupling of the quick-coupling type, is connected to the frame 3 in the vicinity of its upper central part 3B between the two laterally extending arms 3^2, 3^3 which extend in opposite directions from the substantially vertical frame part 3^1. The said attachment device 24 which is formed, for example, of a coupling element with a hole through it, is designed to allow simple and quick coupling and uncoupling of the arrangement 1 with and from a lifting arrangement 25 which is designed for moving the said arrangement 1 and the person 2 supported on it between the desired locations.

A lifting arrangement 25 which is suitable for moving the said supporting arrangement 1 is shown on the drawings in Figures 2 and 3 and partly in Figure 1, and consists of an outer and an inner pivot arm 26 and 27 respectively, which are pivotably mounted on each other via an articulation 29 connected to a drive motor 28. The inner pivot arm 27 is mounted so that it can pivot around a substantially horizontal axis 30 which is located at the upper

end 31A of a column-like upright 31 which may be rigidly connected to a wall, a vehicle, etc., and which can expediently be rotated around its central axis 32. An actuating arrangement 33 in the form of an extensible and retractable arm, preferably telescopic, extends between the upright 31 and the said inner pivot arm 27 and is actuated expediently by a similar disc motor 34 as the motor 28 which acts between the arms 26, 27. A terminal position stop device is expediently mounted on the said actuating arrangement 33, for example in the form of a rod 35 which extends along the arm 33 and is guided by a guide element 36 connected to the arm 33. The outer end 26A of the outer arm 26 bears a connecting element 37, for example in the form of a pin 37, which can co-act with the said attachment device 24 disposed on the supporting arrangement 1.

The two motors 28, 34 are expediently connected to a manually-operated remote control device (not shown on the drawings) for the lifting arrangement 25, enabling the person 2 whom it is intended to move by means thereof via the supporting arrangement 1 to operate the lifting arrangement themselves and to control its movements.

The functioning of the arrangement described above may be as follows:

After having expediently released the screw 23, the coupling element 14 is pulled out with its associated separate supporting element 5 co-acting with the armpit and the supporting element 11, making it possible for the person 2 who desires to use the supporting arrangement 1 to introduce the supporting element 8 under his or her thigh and seat 9, and to introduce the supporting element 4 under one armpit 6, and to adjust it to the desired position, for example when the person 2 is sitting in a wheelchair. After this, the coupling element 14 is pushed into the frame arm part 3^3 and is locked by means of the screw 23 in the desired position. At this

time, the second supporting element 5 which is designed to co-act with the other armpit 7 of the person and the supporting element 11 for the back 10 are adjusted by means of the screws 23 and 16 respectively. After connecting the arrangement 1 to the lifting arrangement 25 via the attachment devices 24 and 37 it is possible to lift the arrangement 1 and the person 2 supported thereon and to pivot them into the desired position by operating the drive motors 28, 34. The person sits comfortably and securely supported by the said arrangement 1 and it is also possible for the person 2 to remain sitting in the arrangement 1 for subsequent moving, after the arrangement 1 has been uncoupled from the lifting arrangement 25.

The invention is not limited to the embodiment example shown on the drawings and described above, but may be modified within the framework of the following Patent Claims.

Patent Claims

1. An arrangement for supporting a person (2) when the person is being moved between two locations, this movement being accomplished by means of a lifting arrangement (25), characterised in that a coupling element (14), on which a supporting element (11) co-acting with the back (10) of the person is mounted, extends from a centrally positioned frame (3) on which supporting elements (8, 4, 5) for supporting the person under their seat (9) and armpits (6, 7) are mounted.

2. An arrangement according to Patent Claim 1, characterised in that the arrangement (1) is constructed of tubes or similar elements which are provided with soft, preferably stuffed, elements in the vicinity of the said supporting elements (4, 5, 8, 11).

3. An arrangement according to either of Patent Claims 1 and 2, characterised in that a plurality of the said supporting elements (4, 5, 8, 11) can be adjusted and locked by means of locking devices (16, 22, 23) co-acting between the frame part (3) and the supporting elements (20, 21) appertaining thereto and/or between the coupling element (14) and the back-supporting element (11).

4. An arrangement according to any of Patent Claims 1 - 3, characterised in that the said frame (3) is substantially in the shape of a T , and has at its lower end (3A) a section (12) extending forwards, away from the back - supporting element (11), followed by a section (13) extending laterally which co-acts with the seat-supporting element (8).

5. An arrangement according to Patent Claim 4, characterised in that at the respective ends (3A, 3^2, 3^3) of the said frame (3) there are openings (17, 18, 19) intended for a plurality of supporting elements and adapted to receive elements (20, 14, 21) connected to the supporting elements (4, 5, 8).

6. An arrangement according to Patent Claim 5, characterised in that, viewed from one side of the arrangement, a separate supporting element (4) co-acting with an armpit and the said seat-supporting element (8) can be connected to one of the upper arms (3^2) of the frame and to the said laterally extending section (13) located lower down, respectively, while the back - supporting element (11) is connected via an intermediate connecting piece (14) to the other (5) of the said two supporting elements co-acting with the armpits and the other upper frame arm (3^3).

7. An arrangement according to Patent Claim 6, characterised in that at least one of the said two supporting elements (4, 5) co-acting with the armpits can be adjusted in the lateral direction, viewed looking away from the person who is using the arrangement (1), and that the back-supporting element (11) which is formed of a bar-shaped cushion extending across the back (10) of the person and preferably bent at an angle, being mounted on a forwardly-extending strut (14^2), can be adjusted to position it nearer to and further away from the said frame (3).

8. An arrangement according to any of Patent Claims 4 - 7, characterised in that locking devices (16, 22, 23) in the form of screws are designed to co-act between two co-acting frames (3) which are movable relative to each other, and the rest of the coupling elements (20, 14, 14^2, 21).

9. An arrangement according to any of the preceding Claims, characterised in that in the region of the upper central part (3B) of the frame there is an attachment device (24) which can be connected to a lifting arrangement (25), preferably constructed in the form of a pivot arm.

10. An arrangement according to Patent Claim 9, characterised in that the said attachment device (24)is of the quick-coupling type, preferably of the hole-and-pin type (24, 37), which makes connection possible by moving

the lifting arm (26) towards or away from the supporting arrangement (1).

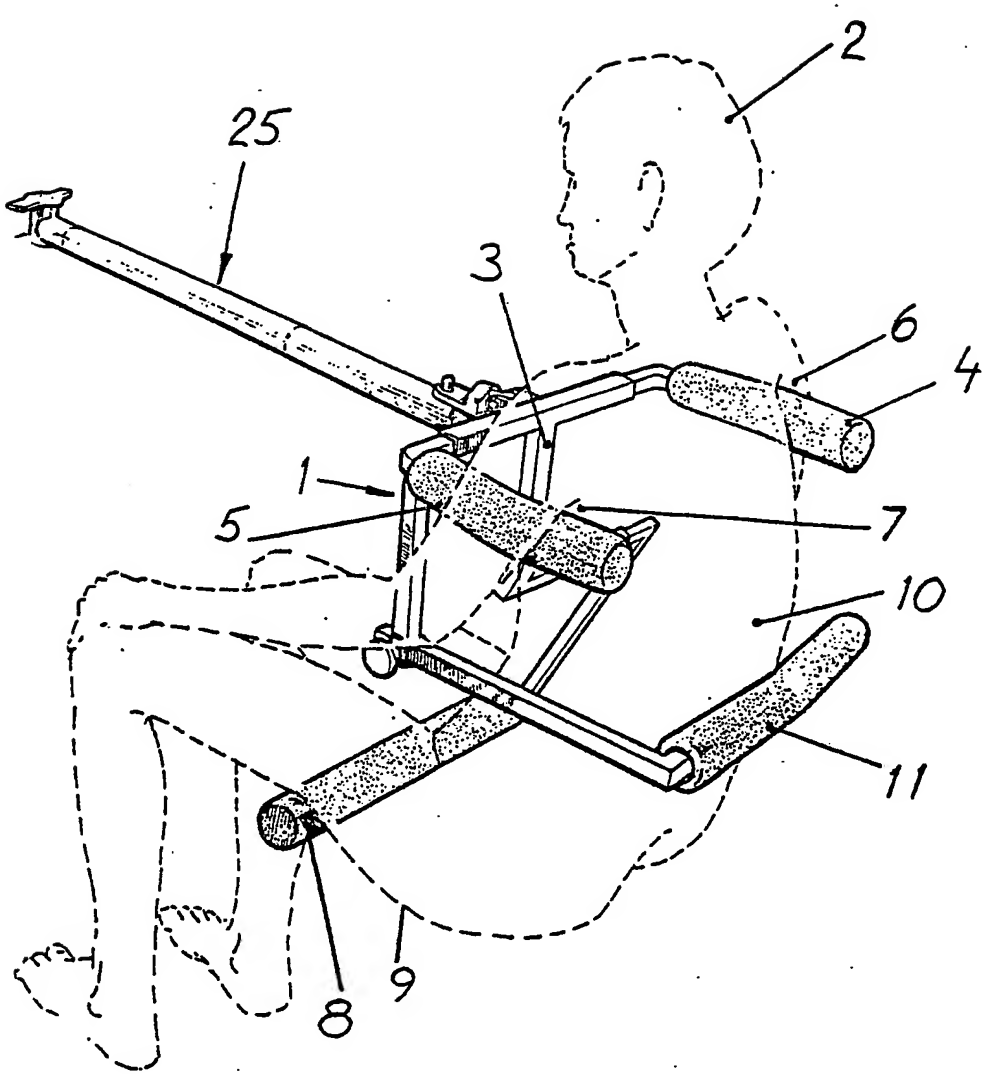

FIG. 1

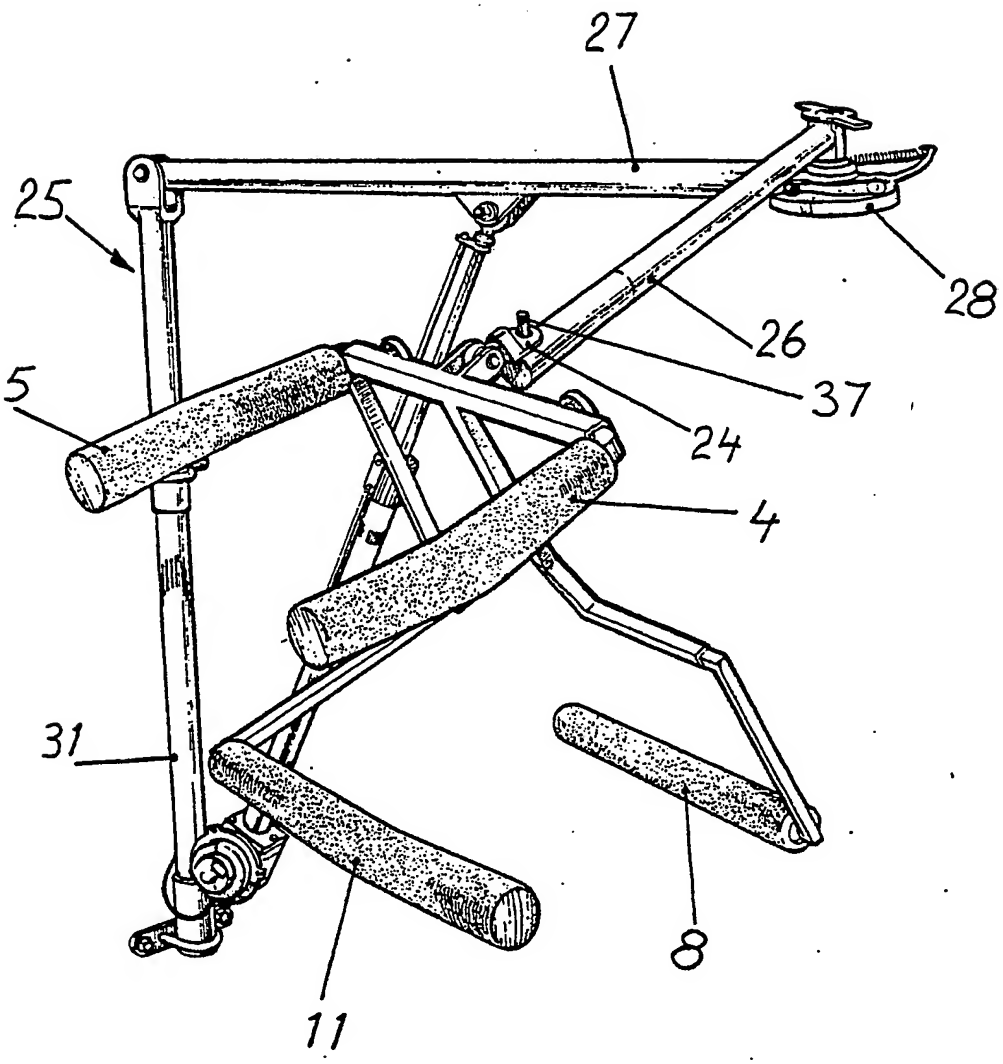

FIG. 2

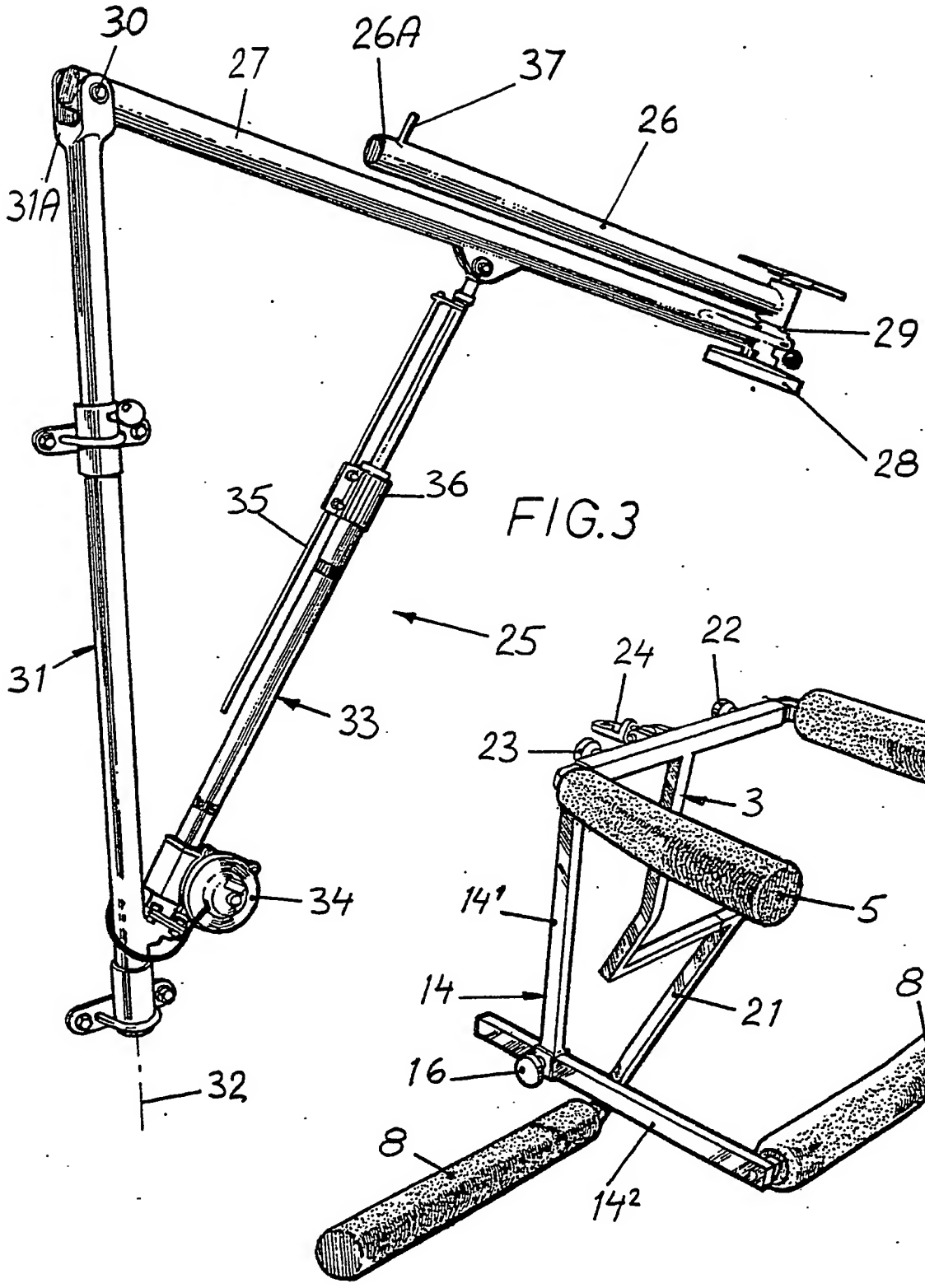

FIG.3

FIG.4

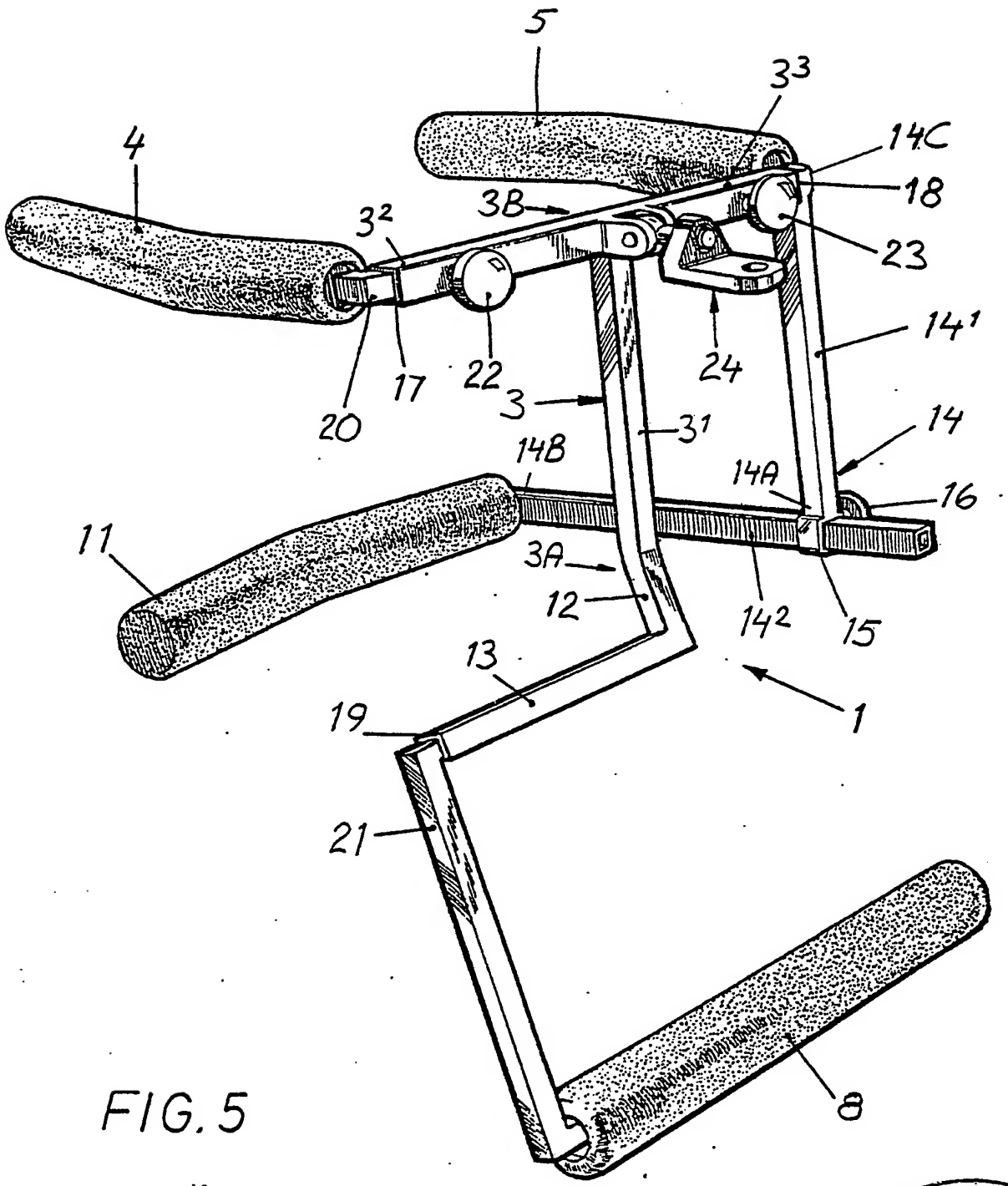

FIG. 5

INTERNATIONAL SEARCH REPORT

International Application No PCT/SE83/00422

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) [3]

According to International Patent Classification (IPC) or to both National Classification and IPC

A 61 G 7/10

II. FIELDS SEARCHED

Minimum Documentation Searched [4]

Classification System	Classification Symbols
IPC 3	A 61 G 7/10, 12/00, A 62 B 1/00-18
US Cl	4: 185; 5: 81, 83-89; 104:173; 182:6

Documentation Searched other than Minimum Documentation to the Extent that such Documents are included in the Fields Searched [5]

SE, NO, DK, FI classes as above

III. DOCUMENTS CONSIDERED TO BE RELEVANT [14]

Category [15]	Citation of Document, [16] with indication, where appropriate, of the relevant passages [17]	Relevant to Claim No. [18]
Y	SE, B, 411 841 (K G LILJEDAHL) 11 February 1980 & SE 7714677	1-3,8,9
Y	US, A, 3 694 829 (J P BAKKER) 3 October 1972 & CA 941337	1-3,8,9
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[15] Special categories of cited documents: [16]

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IV. CERTIFICATION

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